

In the Claims:

Please cancel claims 1-9.

Please add the following claims 10-56:

sub.B1

10. A system for providing communications over an electric power system having a medium voltage power line, a plurality of customer power lines with each extending to a customer residence, and a first transformer coupling the medium voltage power line to the customer power lines, the system comprising:

an aggregation device forming a portion of a data path between the medium voltage power line and a point of presence;

a first transformer bypass device communicatively coupled to the medium voltage power line and the plurality of customer power lines to provide a data path bypassing the first transformer; and

wherein data is communicated between said transformer bypass device and said aggregation device via the medium voltage power line.

11. The system of claim 10, wherein said aggregation device comprises:
a modem communicatively coupled to the medium voltage power line; and
an isolation device in communication with said modem and the medium voltage power line.

12. The system of claim 11, wherein said aggregation device further comprises a coupling device forming at least part of a data path between said modem and the medium voltage power line.

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cont.

13. The system of claim 10, wherein said aggregation device is in communication with the point of presence, at least in part, via an optical fiber.

14. The system of claim 10, wherein said aggregation device is in communication with the point of presence, at least in part, via a wireless link.

15. The system of claim 10, wherein said first transformer bypass device, comprises:

a first modem communicatively coupled to the plurality of customer power lines;

and

a second modem communicatively coupled to the medium voltage power line and said first modem.

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16. The system of claim 15, further comprising:
a first isolation device forming at least part of a data path between said first modem and the medium voltage power line.

17. The system of claim 15, further comprising:

a data router in communication with said first modem and said second modem.

18. The system of claim 15, wherein said aggregation device comprises:

a third modem communicatively coupled to the medium voltage power line and in communication with said second modem; and

a second isolation device forming at least part of a data path between said third modem and the medium voltage power line.

19. The system of claim 18, wherein said second modem and said third modem communicate telephony data.

20. The system of claim 18, wherein said second modem and said third modem communicate using Orthogonal Frequency Division Multiplexing.

21. The system of claim 10, wherein each of the customer power lines is coupled to a first set of communication devices and each of said communication devices has a unique address.

22. The system of claim 21, wherein said first transformer bypass device comprises:

a first modem communicatively coupled to the plurality of customer power lines and in communication with said first set of communication devices;

a second modem communicatively coupled to the medium voltage power line;
and

a data router in communication with said first modem and said second modem.

23. The system of claim 22, wherein said data router is configured to prioritize transmission of data received from the communication devices.

24. The system of claim 22, wherein said transformer bypass device communicates telephony data.

25. The system of claim 22, wherein said first modem communicates using Orthogonal Frequency Division Multiplexing.

26. The system of claim 22, wherein said transformer bypass device communicates Internet data.

27. The system of claim 22, wherein said transformer bypass device communicates video data.

28. The system of claim 15, wherein the electric power system comprises a second transformer coupled to a second plurality of customer power lines communicatively coupled to a second set of communication devices, the system further comprising:

a second bypass device at a third location comprising:

a third modem communicatively coupled to the second plurality of customer power lines and in communication with said second set of communication devices;

a fourth modem communicatively coupled to the medium voltage power line; and

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cont.

a data router in communication with said third modem and said fourth modem.

29. A method of using a communication system for providing communications for at least one communication device, the system comprised of a bypass device and a point of presence interface device in communication with each other via a medium voltage power line, the bypass device in communication with the communication device via a first low voltage power line, the method comprising:

at the bypass device:

receiving a first data packet signal from the communication device via the first low voltage power line,

demodulating said first data packet signal,

modulating a signal based on said first data packet signal to form a second data packet signal, and

transmitting said second data packet signal through the medium voltage power line; and

at the aggregation device:

receiving said second data packet signal from the medium voltage power line,

demodulating said second data packet signal, and

transmitting a third signal based on said second data packet signal to a point of presence.

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cont.

30. The method of claim 29, further comprising:

at the bypass device:

receiving data signals from a plurality of communication devices; and
prioritizing said received data signals at the bypass device.

31. The method of claim 29, wherein said first data packet signal comprises telephony data.

32. The method of claim 29, wherein said first data packet signal comprises Internet data.

33. The method of claim 29, wherein said first data packet signal comprises video data.

34. The method of claim 29, wherein said first data packet signal comprises audio data.

35. The method of claim 29, wherein said audio data comprises music data.

36. A transformer bypass device providing a communication path around a transformer between a medium voltage power line and at least one low voltage power line, comprising:

a first modem communicatively coupled to the low voltage power line; and

a second modem in communication with said first modem and communicatively coupled to the medium voltage power line.

37. The device of claim 36, further comprising a data router in communication with said first modem and said second modem.

sub. B1 38. The device of claim 36, further comprising an isolation device disposed between said second modem and the medium voltage power line.

39. The device of claim 38, wherein the isolation device is an optical isolation device.

42 cont. 40. The device of claim 36, wherein said second modem uses Orthogonal Frequency Division Multiplexing.

41. The device of claim 40, wherein said first modem uses Orthogonal Frequency Division Multiplexing.

42. The device of claim 36, wherein said first modem uses Orthogonal Frequency Division Multiplexing.

43. The device of claim 36, wherein said second modem uses Code Division Multiple Access.

44. The device of claim 1, wherein said first modem is communicatively coupled to a plurality of low voltage power lines, and wherein said first modem is in communication with a plurality of communication devices via the plurality of low voltage power lines.

45. The device of claim 44, further comprising a data router configured to prioritize data packets received from the plurality of communication devices for transmission on the medium voltage power line.

46. The device of claim 45, wherein said first modem uses Orthogonal Frequency Division Multiplexing.

47. A communication device for providing data communications through a medium voltage power line, comprising:

a communication interface providing at least part of a communication path between the medium voltage power line and the Internet;

a coupling device communicatively coupled to the medium voltage power line;
and

a modem in communication with said communication interface and in communication with the medium voltage power line via said coupling device.

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48. The device of claim 47, wherein said communication interface is a backhaul interface.

49. The device of claim 47, further comprising an isolator disposed between said modem and the medium voltage power line.

50. The device of claim 49, wherein said isolator is disposed between said modem and said coupling device.

51. The bypass device of claim 47, wherein said modem uses Orthogonal Frequency Division Multiplexing.

52. A method of communicating Internet packet data through a communication system to a communication device, the system comprised of a bypass device and a network interface device communicatively coupled to each other via a medium voltage power line, the bypass device in communication with the communication device via a first low voltage power line, the method comprising:

at the network interface device:

receiving a first packet of Internet data from a network, and

transmitting said received first packet of Internet data through the medium voltage power line; and

at the bypass device:

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cont.

receiving said transmitted first packet of Internet data via the medium voltage power line, and

transmitting said first packet Internet of data through the low voltage power line to the communication device.

53. The method of claim 52, further comprising at the communication device receiving said first packet of Internet data.

54. A method of communicating telephony packet data through a communication system to a communication device, the system comprising of a bypass device and a network interface device communicatively coupled to each other via a medium voltage power line, the bypass device communicatively coupled to the communication device via a first low voltage power line, the method comprising:

at the network interface device:

receiving a first packet of telephony data from a network, and

transmitting said received first packet of telephony data through the medium voltage power line; and

at the bypass device:

receiving said transmitted first packet of telephony data on the medium voltage power line, and

transmitting said first packet of telephony data through the low voltage power line to the communication device.

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